

REMARKS/ARGUMENTS

The office action of October 19, 2004 has been carefully reviewed and these remarks are responsive thereto. Reconsideration and allowance of the instant application are respectfully requested. Claims 1-61 remain in this application.

Applicants note with appreciation the Examiner's indication that the application contains allowable subject matter. Specifically claims 7, 10-15, 22, 28-30, 37, 45, 49, 58, and 60-61 have been objected to, but would be allowable, if rewritten in independent form to incorporate all the features of their ultimate base claim and any intervening claims.

Claims 1-6, 8, 9, 16-21, 23-27, 31-36, 38-44, 46-48, 50-57 and 59 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Chimoto (EU 0676724 A2) in view of Harman (WO 99/30280). Applicants respectfully traverse this rejection.

Neither Chimoto nor Harman alone, or in combination, describes determining a configuration of an algorithm for creating a depth map as recited in claim 1. According to Claim 1, a depth is assigned to at least one pixel or portion of an image, and a configuration of a first algorithm is determined to ascertain depth characteristics as a function of relative location and image characteristics, the first algorithm is used to calculate a depth characteristic for each pixel or portion of the image, and the depth characteristics form a depth map for the image. Thus the algorithm can complete the depth map from incomplete depth characteristics.

The Action asserts that page 4, lines 32-34 and 36-37 and page 5, lines 20-30 of Chimoto describes utilizing the depth, image characteristics and the location getting the configuration of a first algorithm to ascertain depth characteristics as a function and utilizing the first algorithm to calculate a depth map. Neither Chimoto nor Harman teach this feature.

Both Chimoto and Harman require a pre-existing 3D polygonal model or an identified object, respectively, and do not describe the steps of utilizing the depth image characteristics and respective relative location to determine a configuration of a first algorithm to ascertain depth characteristics as a function of relative location and image characteristics, and utilizing the first algorithm to calculate a depth characteristic for each pixel or portion of the image, wherein said depth characteristics form a depth map for the image.

The Chimoto patent application describes a texture mapping method and image processing apparatus. The method of Chimoto transforms a texture map to account for the transformation of a *3D model* onto which the texture map is to be mapped. Depth information is assigned to vertices of the 2D texture coordinates “to define texture data as a plane in a three-dimensional space a virtually arranging the texture data in a space (visual point coordinates of the polygon.” (page 4, lines 29-31) Notably, Chimoto requires that a pre-existing 3D polygon model and assigns depth information to the vertices of a corresponding polygon.

Page 4, lines 35-37 of Chimoto recites that after the polygon and the texture data are transformed to be identical to each other, linear mapping of each pixel on the polygon is performed using coefficients obtained in linear transform and the depth values of each pixel on the polygon. This is not a teaching or suggestion of utilizing the depth, image characteristics and the location getting the configuration of a first algorithm to ascertain depth characteristics as a function and utilizing the first algorithm to calculate a depth map as asserted by the Action.

Further, as the Action notes, there is no description in Chimoto of producing a depth map for an image. Harman, Applicants’ prior invention, describes improved image conversion and encoding techniques. While location and image characteristics are used in Harman to create a depth map, the depth characteristics are associated with an identified object. This association with an identified object eliminates the need to determine the configuration of a first algorithm as recited in claim 1. Thus, neither Chimoto nor Harman, alone or in combination teaches or suggests determining a configuration of a first algorithm to ascertain depth characteristics as a function and utilizing the first algorithm to calculate a depth map, and claim 1 is patentably distinct from the art of record.

Claims 2, 3, and 5 which depend from claim 1 and are patentably distinct for the same reasons as set forth with regard to claim 1.

Claim 4 recites that the image characteristics include at least one of luminance, chrominance, contrast or spatial measurements. The Action relies on page 5; lines 31-32 of Chimoto for disclosing the image characteristics include luminance. This portion of Chimoto recites “the polygon rendering is an arithmetic rendering process such as shading to perform texture mapping on the basis of each vertex data of a polygon.” Thus the luminance data

described in Chimoto refers to the luminance of the 3D polygon model. The 3D polygonal model is wholly different from the image characteristics recited in claim 4.

With regard to claims 8 and 9, contrary to Action's assertion that Harman discloses that a random component is introduced, page 5, lines 21-22 recite "In another embodiment the depth of the object may be assigned a numerical value. This value may be positive or negative, in a linear or non-linear series and contain single or multiple digits." There is no teaching or suggestion of "random" in this description. Indeed, the numerical value referred to is not random but rather belongs to a series; the series consists of values that differ in a non-random deterministic manner from one another.

Independent claim 16 and its dependent claims 1-21, and 23-27, independent claim 31 and its dependent claims 32-36 and 38, independent claim 39 and dependent claims 40-44 and 46, independent claim 50 and dependent claims 51 and 52, and independent claim 53 and dependent claims 53-57 and 59 are patentable over Chimoto and Harman for the same reasons set forth with regard to claim 1.

Claim 36 calls for the learning algorithm to be one of back propagation algorithm, a C4.5 algorithm, or K-means algorithm. To show this feature, the action relies on page 7, lines 21-23 of Harman, which recites "[t]he computer program may learn from these corrections, using neural networks or expert systems for example, so as to continually improve the accuracy of depth assigning." Clearly, this portion of Harman does not teach a "back propagation algorithm, C4.5 algorithm, or K-means algorithm" as recited in claim 36.

In addition to the reasons set forth with regard to claim 1, independent claim 47 is further patentable as neither Chimoto nor Harman teaches utilizing the algorithm to create a depth map of each frame of the image sequence, wherein frames adjacent the key frames are processed prior to non-adjacent frames. Instead, page 7, lines 7-12 of Harman, relied upon by the Action; describe how an object depth map varies over time "based upon the size of an object as it moves over time."

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CONCLUSION

If any additional fees are required or if an overpayment is made, the Commissioner is authorized to debit or credit our Deposit Account No. 19-0733, accordingly.

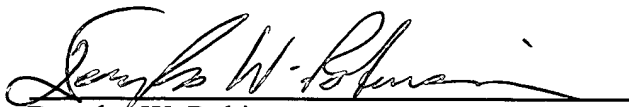
All rejections having been addressed, applicants respectfully submit that the instant application is in condition for allowance, and respectfully solicit prompt notification of the same.

Respectfully submitted,

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